1.01 INTRODUCTION

A. Construction in the Ancient World

For more than 4,500 years, from primitive Mesopotamian fire-brick and early Egyptian cut-stone construction to the extraordinary structures of the modern-built environment, construction has been a hallmark of the advancement of human civilization. In the oldest story known to humanity written about

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1. See Plutarch, Pericles (75 AD):

That which gave most pleasure and ornament to the city of Athens, and the greatest admiration and even astonishment to all strangers, and that which now is Greece’s only evidence that the power she boasts of and of her ancient wealth are no romance or idle story, was [Pericles’] construction of the public and sacred buildings.

See also 1 Philip L. Bruner & Patrick J. O’Connor, Bruner & O’Connor on Construction Law § 1:1 (West Group 2002, supplemented annually) [hereinafter Bruner & O’Connor].
2750 BC, a thousand years earlier than Homer’s Iliad or the Biblical Old Testament, the author described the Mesopotamian city of Uruk and the life of its historical king named Gilgamesh. Of Uruk the author said:

This is the wall of Uruk, which no city on earth can equal. See how its ramparts gleam like copper in the sun. Climb the stone staircase, more ancient than the mind can imagine, approach the Eanna Temple, sacred to Ishtar, a temple that no king has equaled in size or beauty, walk on the wall of Uruk, follow its course around the city, inspect its mighty foundations, examine its brickwork, how masterfully it is built, observe the land it encloses: the palm trees, the gardens, the orchards, the glorious palaces and temples, the shops and marketplaces, the houses, the public squares.2

Ever since humanity first promulgated rudimentary principles of law have existed to regulate human rights and obligations arising out of societal interaction; they have included principles of law governing the built environment and the construction process. The earliest known principles of construction law were primitive and punitive. Under its “eye for an eye” system of justice, Hammurabi’s Code dictated that builders be punished for injuries to others caused by collapse of their buildings. The code provisions pertinent to construction state:

229 If a builder build a house for someone, and does not construct it properly, and the house which he built fall in and kill its owner, then the builder shall be put to death.

230 If it kill the son of the owner, the son of that builder shall be put to death.

231 If it kill a slave of the owner, then he shall pay slave for slave to the owner of the house.

232 If it ruin goods, he shall make compensation for all that is ruined, and in as much as he did not construct properly this house which he build and it fell, he shall re-erect the house from his own means.

233 If a builder build a house for someone, even though he has not yet completed it, if then the walls seem toppling, the builder must make the walls solid from his own means.3

As classical antiquity gradually civilized the built environment, so, too, did those times refine the governing law. By the reign of Rome’s Caesar Augustus

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2. See Stephen Mitchell, Gilgamesh 198–99 (2004). Twentieth-century archaeological excavations and modern noninvasive exploratory techniques confirm that Uruk, lying near the Euphrates River in southeastern Iraq, was first settled about 7,000 years ago and went on to become the largest city on earth around 3,000 years ago. See Andrew Lawler, The Everlasting City, 66(5) Archaeology, Sept./Oct. 2013, at 26–28.

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(27 BCE to AD 14), construction risks inherent in building upon unsuitable soils and building without managerial competence and cost control were widely recognized. Good construction practice under Roman law favored careful contractual articulation of the scope of work and allocation of construction risks.

4. When he became Rome’s first emperor in 27 BC, Gaius Julius Caesar Octavius (63 BC to AD 14), great nephew of Julius Caesar, was given the name Augustus by the Roman Senate.

5. Jesus of Nazareth, who is said to have practiced carpentry as a boy, employed widely understood metaphors in his sermons, and concluded His Sermon on the Mount with this admonition:

Everyone then who hears these words of mine and acts on them will be like a wise man who built his house on a rock. The rain fell, the floods came, and the winds blew and beat on that house, but it did not fall, because it had been founded on rock. And everyone who hears these words of mine and does not act on them will be like a foolish man who built his house on sand. The rain fell, and the floods came, and the winds blew and beat against that house, and it fell—and great was its fall! (Emphasis added.) Matthew 7:24–27 (New Revised Standard Edition).

6. See Marcus Vitruvius Pollio, De Architectura, Book X, Introduction (ca. 20 BC) (Morris Hickey Morgan trans., 1914). Known to history as Vitruvius, he was chief engineer to Caesars Julius and Augustus and thus in his time could be called the “chief engineer of the civilized world.” Vitruvius wrote a ten-volume treatise for Augustus on Roman construction practices, which survived the ravages of time to influence the architecture of the European Renaissance. Among other things, Vitruvius proposed to Augustus that Rome resurrect an ancient ancestral law of the Greek City of Ephesus (the same place to which Saint Paul almost a hundred years later wrote his Letter to the Ephesians):

In the famous and important Greek City of Ephesus, there is said to be an ancient ancestral law, the terms of which are severe, but its justice is not inequitable. When an architect accepts the charge of a public work, he has to promise what the cost of it will be. His estimate is handed to the magistrate, and his property is pledged as security until the work is done. When it is finished, if the outlay agrees with his statement, he is complimented by decrees and marks of honor. If no more than a fourth has been added to his estimate, it is furnished by the treasury, and no penalty is inflicted. But when more than one-fourth has been spent in addition on the work, the money required to furnish it is taken from his property.

Roughly two generations after Vitruvius wrote his treatise, Jesus of Nazareth used the same common problem as a metaphor:

For which of you, intending to build a tower, does not first sit down and estimate the cost, to see whether he has enough to complete it? Otherwise, when he had laid a foundation and is not able to finish, all who see it will begin to ridicule him, saying, “this fellow began to build and was not able to finish.” Luke 14:28–30 (New Revised Standard Edition).

7. See Vitruvius, supra note 6, Book I, chapter 1. Regarding “construction law,” Vitruvius advised the architect—the “master builder” of those days—as follows:

[A]s for principles of law, [an Architect] should know those which are necessary in the case of buildings having party walls, with regard to water dripping from the eaves, and also the laws about drains, windows, and water supply. And other things
B. Construction’s 19th-Century Transformational Events

For 1,900 years following the advent of Augustus’s Imperial Rome—through Europe’s Dark Ages, Renaissance, and Industrial Revolution—construction law was subsumed by broader and more generalized fields of law and by perceptions of construction as local and parochial and as invoking primarily the “law of the shop,” rather than the “law of the courts.” Then, beginning in the mid-1800s, American law governing construction was transformed by a series of revolutionary events:

In 1857, the founding of the American Institute of Architects, which championed the practice of architecture as a specialized profession distinct from construction contracting, heralded the eclipse of the architect’s historic role as “master builder”—the single person in charge of design and construction. Engineering associations thereafter were formed to promote engineering as a profession, separate from both architectural design and construction contracting, which, in turn, spawned a number of professional engineering subspecialties—electrical, mechanical, structural, civil, and geotechnical—to address emerging technical disciplines. Professional specialization accelerated after legislative enactment of state design professional registration laws in

of this sort should be known to architects, so that, before they begin upon buildings, they may be careful not to leave disputed items for the householders to settle after the works are finished, and so that in drawing up contracts, the interests of both the employer and the contractor may be wisely safeguarded. For if a contract is skillfully drawn, each may obtain a release from the other without a disadvantage.

Roman builders had good reason to exercise care in contracting because the Roman legal doctrine of *pacta sunt servanda* (“contracts must be honored”) imposed strict contractual liability unless nonperformance was excused under the doctrine of *rebus sic stantibus* (“provided the circumstances remain unchanged”). See also Restatement (Second) of Contracts (1982) ch. 11, intro. note “Contract liability is strict liability. It is an accepted maxim that *pacta sunt servanda*, contracts are to be kept.”). These ancient principles undergird the modern law of contract and its legal doctrines of sanctity of contract, force majeure, and impracticability. See 5 Bruner & O’Connor, supra note 1, § 15:22.

the United States, beginning with the State of Illinois in 1897. By the mid-20th century, the architectural profession was perceived as having abandoned its age-old role as “master builder.”

By 1888, in response to the rigid, express contractual risk allocation imposed by the legal Doctrine of Sanctity of Contract, which allocated almost all construction and completion risks to the contractor, unless the contract expressly stipulated otherwise, the American Institute of Architects and the National Association of Builders (predecessor to the


[The increasing complexity of construction projects . . . challenged the architect’s historic role as the most knowledgeable player at the job site. As Professor Salvadore of Columbia University observed, architects came in the 1970s to know less and less about more and more until the architect is “sometimes said to know nothing about everything.” Even if we stop short of Salvadore’s caricature, it is clear that the architect was no longer venerated for his or her comprehensive grasp of all aspects of building. . . .

During this same period, whenever the economy tightened, opposing forces claimed greater pieces of the architect’s historic domain. Civil engineers claimed the right to design hospitals, office buildings, and court houses, interior designers claimed the right to design 60,000 square foot office build-outs. Mechanical engineers made arguments that, in the end, suggested that the shapely Hancock Tower in Boston was merely a chase for the mechanical system.

Professionals became increasingly targets of the plaintiff’s bar; in the 60s and 70s architects were conventionally sued if anything went wrong at the project. The fall of the house of privity made the architect a direct target of unhappy subcontractors and contractors. The rising tide of civil litigation elevated the role of the insurance industry. The insurance industry not only affected practice by describing conduct that would result in the loss of coverage, it insisted on a place at the table in the AIA Construction Industry documents being drafted. The effect of listening too closely to the cautions of a prudential insurance industry was that the architect further retreated from the dominant role he had once played. . . .

10. See Dermott v. Jones, 69 U.S. 1, 2, 7; 17 L. Ed. 762 (1864):

It is a well settled rule of law that if a party by his contract charges himself with an obligation possible to be performed, he must make it good, unless its performance is rendered impossible by Act of God, the law or the other party. Unforeseen difficulties, however great, will not excuse him. . . . [The rule] rests upon a solid foundation of reason and justice. It regards the sanctity of contracts. It requires parties to do what they have agreed to do. If unexpected impediments lie in the way and a loss must ensue, it leaves the loss where the contract places it. If the parties have made no provision for a dispensation, the rule of law gives none. It does not allow a contract fairly made to be annulled, and it does not permit to be interpolated what the parties themselves have not stipulated.
modern Associated General Contractors of America) negotiated and cosponsored the so-called Uniform Contract—the first national attempt to create a standard construction contract form. Building on that cooperative mutual relationship, the American Institute of Architects, from 1911 to the present, has published 13 editions of its standard construction documents with the endorsement of the Associated General Contractors of America.\textsuperscript{11}

By the mid-1800s, states had begun to enact mechanic’s lien statutes to protect unpaid subcontractors, laborers, and materialmen who had performed work on private property. The statutes granted such persons defeasible equitable interests in the improved real estate up to the value of their respective contributions. Such statutes, however, were construed to grant no lien rights in public property.\textsuperscript{12}

In 1894, troubled by contractor defaults on federal contracts during the financial panic of 1893 and by the absence of mechanic’s lien protection on public projects, Congress enacted the Heard Act. The Heard Act required federal contractors, as a condition of contract award, to post surety bonds to protect subcontractors, laborers, and materialmen against the credit risk of nonpayment and to protect the government against the performance risk of default. In 1935, Congress replaced the Heard Act with the more comprehensive Miller Act. All states followed suit by adopting their own “Little Heard” or “Little Miller” acts. These acts fostered the formation of the modern surety industry.\textsuperscript{13}

In the late 1800s, the first treatises were published that addressed some of the subjects recognized today as within the ambit of modern “construction law.”\textsuperscript{14}

The early 1900s witnessed the emergence of a primary judicial vehicle for development of construction law principles—the modern theory of “contextual contract.”\textsuperscript{15} This vehicle elastically allowed the judiciary to add contractual terms, conditions, and warranties implied by the


\textsuperscript{12} See, e.g., Jordan v. Bd. of Educ. of Taylor’s Falls, 39 Minn. 298, 39 N.W. 801 (1888) (mechanic’s lien could not be foreclosed against public property).

\textsuperscript{13} See 4 A Bruner & O’Connor, supra note 1, §§ 12:8–12:9; Willis D. Morgan, The History and Economics of Suretyship, 12 Cornell L.Q. 153 (1926) and 13 Cornell L.Q. 487 (1927).

\textsuperscript{14} See 1 Bruner & O’Connor, supra note 1, § 1:7.

\textsuperscript{15} See Richard Speidel, An Essay on the Reported Death and Continued Vitality of Contract, 27 Stan. L. Rev. 1149, 1173–74 (1975); 1A Bruner & O’Connor, supra note 1, § 3.2 et seq.
transaction’s surrounding circumstances\(^\text{16}\) and complexity,\(^\text{17}\) and to interpret express contractual language in conformance with industry usage, custom, and practice.\(^\text{18}\) Contextual contract principles led courts to recognize numerous implied conditions in construction contracts as a matter of law: the owner’s implied duty of full disclosure, the owner’s implied warranty of the adequacy of detailed design, the contractor’s implied duty of good workmanship, the contractor’s duty of inquiry and clarification, the mutual implied duty of cooperation, and the mutual implied duty of good faith.\(^\text{19}\) In addition, the judiciary fashioned contextual contractual principles of unconscionableness, disproportionality, and misrepresentation, and restitutionary principles of promissory estoppel. Moreover, Congress and state legislatures added their own contextual concepts by using the legislative-administrative process to

\(^{16}\) See Oliver Wendell Holmes, Jr., The Path of the Law, 10 Harv. L. Rev. 457, 466 (1897).

\(^{17}\) See Karen Eggleston, Eric A. Posner, & Richard Zeckhauser, The Design and Interpretation of Contracts: Why Complexity Matters, 95 Nw. U. L. Rev. 91, 92 (2000) (“We argue that . . . the current tendency of scholars to focus on completeness and neglect complexity has resulted in an inadequate understanding of contracts and contract law.”).

\(^{18}\) See Oliver Wendell Holmes, Jr., The Theory of Legal Interpretation, 12 Harv. L. Rev. 417 (1899); 1A Bruner & O’Connor, supra note 1, § 3:33 et seq.; David Ratterman, Codification of Trade Custom and Usage as a Viable Supplement to Construction Contracts, 11 J. ACCL 1 (Winter 2017).

\(^{19}\) See 1A Bruner & O’Connor, supra note 1, §§ 3:4–3:32.
preempt areas of law traditionally reserved for private bargainers and the courts.

By the late 19th century, competitive bidding laws had been enacted in most jurisdictions to prevent chicanery and fraud in the award of public construction and other contracts by requiring public contracts to be awarded to those responsible bidders who submitted the lowest responsive bids. Known today as the “Design-Bid-Build” or “sealed bid” project delivery method, competitive bidding remains the most widely used procurement approach.20

The 19th century’s host of new specialized construction trades—electricians, plumbers, iron workers, steamfitters, and others organized to fabricate or install newly invented technologies—necessitated utilization by supervising “general” contractors of improved construction scheduling techniques, and led to the introduction and widespread use of bar charts in the early 1900s and of sophisticated critical path method networks beginning in the 1950s.21

Following the Great San Francisco Earthquake in 1906, municipalities began to take more seriously and to enact comprehensive building and fire codes formulated by regional code organizations. Hundreds of local and regional building codes developed in the 20th century have been replaced by adoption of the new International Building Code introduced in 2003.22

In the 1920s, the science of “soil mechanics” was founded by a young engineer, Carl Terzaghi.23 This science led to development in the 1940s of the

22. See M. Tobbner, The History Of Building Codes To The 1920s (1984); 5 Bruner & O’Connor, supra note 1, §§ 16:1–16:2.
23. Interestingly, it was the law that drove Terzaghi to his new calling. After receiving a mechanical engineering degree in Austria in 1904, Terzaghi worked for a design-build firm. He designed a factory building with footings sized in accordance with the empirical formulae of the day, and had the site load tested with a typical two-foot-by-two-foot platform loaded to 150 percent of design load. No settlement occurred within 24 hours, and Terzaghi allowed the construction to proceed. As soon as the building was completed, it began to settle and crack. Terzaghi was sued and lost quite a bit of money; as a result:

He began to question the reasons for this failure. He was soon impressed with the high standards of engineering design related to concrete construction compared with the guesswork and ignorance associated with the bearing values of soils that support those structures. He decided to devote himself to this most backward, unscientific aspect of civil engineering practice—the study of soils.
Unified Soil Classification System,\textsuperscript{24} which created a scientific framework and terminology for precise classification of soils for engineering purposes by geotechnical professionals worldwide.

By the early 20th century, the increasing complexity of the construction process led the industry to promote specialized industry dispute resolution procedures invoking professional decision making and arbitration. By 1905, before any state had authorized enforcement of arbitration agreements or awards, and at a time when the judiciary was hostile to arbitration under a perception that the forum was intended to divest courts of judicial business, the Uniform Contract of the American Institute of Architects and the National Association of Builders called for resolution of disputes by arbitration.\textsuperscript{25} Thereafter, the American Institute of Architects’ Standard General Conditions of Contract continued to provide for the resolution of disputes by arbitration. By 1925, Congress had enacted the Federal Arbitration Act, followed after 1955 by most states’ adoption of the Uniform Arbitration Act. Thereafter, the judiciary openly embraced arbitration as a favored method of alternate dispute resolution.\textsuperscript{26}

\begin{itemize}
\item[24.] See ASTM Standard D2487-98, \textit{Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)}.
\item[25.] See the Uniform Contract art. XII (1905 ed.):
\begin{quote}
In case the Owner and Contractor fail to agree in relation to matters of payment, allowance or loss referred to in Arts. III or VIII of this contract, or should either of them dissent from the decision of the Architects referred to in Art. VII of this contract, which dissent shall have been filed in writing with the Architects within ten days of the announcement of such decision, then the matter shall be referred to a Board of Arbitration to consist of one person selected by the Owner, and one person selected by the Contractor, these two to select a third. The decision of any two shall be final and binding on both parties hereto. Each party shall pay one-half of the expense of such reference.
\end{quote}
\begin{quote}
I cannot emphasize too strongly to those in business and industry—and especially to lawyers—that every private contract of real consequence to the parties ought to be treated as a “candidate” for binding private arbitration. In the drafting of such contracts, lawyers will serve their clients and the public by resorting to tested clauses the American Arbitration Association has developed to fit particular needs. . . . We must now use the inventiveness, the ingenuity and the resourcefulness of American businessmen and lawyers—the “Yankee Trader” innovativeness—to shape
In the 21st century, the construction industry remains the largest single segment of the production sector of the American economy and probably of the world economy. The industry also remains one of the most technologically complex. The development of modern engineering principles, sophisticated construction practices, and new building and materials technologies produced a host of specialized design disciplines and construction trades to oversee the design and installation of highly specialized modern systems, equipment, and materials unknown prior to the 20th century, that is, electricity, plumbing, heating and ventilating, lighting, telephones, fiber optic cables, elevators and escalators, fire suppression, curtain wall, roofing and insulation, sealants, reinforced concrete, paints and coatings, and high-strength steel and glass. Those disciplines, systems, equipment, and materials fostered an exponential increase in the complexity, size, and scope of the built environment, including skyscraper office towers with deep foundations, large-bore tunnels, massive dams and power plants, subways and interstate highways, wastewater treatment plants, airports, and harbors.

Construction today has acquired a legendary reputation for extraordinary factual and legal complexity, which is not unjustly earned:

new tools to meet new needs. In the area of arbitration, the tools and the techniques are ready and waiting for imaginative lawyers to make use of them.

If the courts are to retain public confidence, they cannot let disputes wait two, three and five years or more to be disposed of. The use of private arbitration is one solution, and lawyers should be at the forefront in moving in this direction.


28. The judiciary itself has embellished this legendary reputation. See, e.g., Erlich v. Menezes, 21 Cal. 4th 543, 87 Cal. Rptr. 2d 886, 896, 981 P.2d 978 (1999), in which the Supreme Court of California observed:

[T]he [owners] may have hoped to build their dream home and live happily ever after, but there is a reason that tagline belongs in fairy tales. Building a house may turn out to be a stress-free project; it is much more likely to be the stuff of urban legends—the cause of bankruptcy, marital dissolution, hypertension, and fleeting fantasies ranging from homicide to suicide. Justice Yegan noted below, “No reasonable homeowner can embark on a building project with certainty that the project will be completed to perfection. Indeed, errors are so likely to occur that few if any
Construction is an inherently complex business. Even casual observers of the construction process are struck by the enormous amount of information required to construct a project. Hundreds, even thousands, of detailed drawings are required. Hundreds of thousands of technical specifications, requests for information, and other documents are needed. Complex calculations are used to produce the design. For years, this complexity dictated a labor-intensive, highly redundant methodology for doing the work. Projects were fragmented and broken into many parts. Different entities undertook different parts of a project, both for design and construction. Therefore, the construction industry became exceptionally fragmented. On a project of even average complexity, there may have been from 5 to 15 firms involved in design. From 40 to 100 companies may have been engaged in construction. Many more companies supplied materials, professional services, and other elements necessary for completion of the project. It was effectively impossible to convey the sum of knowledge necessary to construct a facility in a set of plans and specifications. Stated another way, the information technology traditionally used for construction is inadequate.29

Construction’s complexity has created recognized public safety risks, which, in turn, have led to increased governmental regulation of the construction process through legislative imposition of licensing laws, safety regulations, and building codes.30 The recognized financial credit risks inherent in the multiparty construction process have led to legislative enactment of an assortment of laws to protect owners and unpaid construction trades against the risks of contract default.

1.02 CONSTRUCTION DISPUTE RESOLUTION

Like other highly complex fields of human endeavor, the construction process has spawned its own unique customs, practices, and technical vocabulary, which, in turn, led courts and legislatures to develop legal principles consistent with industry realities. Construction law has derived much of its uniqueness from industry experience, customs, and perceived foreseeable risks, which

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30. See 5 Bruner & O’Connor, supra note 1, § 16:1 et seq.